Empirical antibiotics for suspected early neonatal sepsis

‘Empirical treatment of neonatal sepsis: are the current guidelines adequate?’ makes recommendations for empirical antibiotic treatment of neonates based on voluntary surveillance data relating to blood culture isolates. The adverse effects of antibiotic treatment do not appear to have been considered and the recommendations do not differentiate between early and late sepsis.

In 2010, the NPSA (National Patient Safety Agency) reported that, over a 1-year period, 507 incidents involving gentamicin treatment of neonates were notified, of which resulted in ‘moderate harm’ in the short term with additional possible longer-term adverse outcomes of cochlear or vestibular damage. It is also known that the m.1555A→G mutation occurs in a proportion of the population and was shown to have a frequency of 0.19% in a large UK cohort, giving significant genetic susceptibility to the toxic effects of the aminoglycosides, with a high risk of permanent cochlear damage following normal therapeutic doses of gentamicin.

On our neonatal unit, for the past 30 years, suspected early neonatal sepsis has been treated with intravenous cefotaxime; ampicillin is added for babies considered to be at increased risk of having listerial infection. This regimen minimises the risks of antibiotic toxicity, reduces the workload, costs and potential errors associated with monitoring of serum gentamicin concentrations and may provide better coverage for bacterial meningitis than a gentamicin-based regimen. To date, we have found no evidence of an increased prevalence of antibiotic-resistant coliform organisms on our unit, no apparent increase in incidence of fungal sepsis and no lack of efficacy in the treatment of group B streptococcal sepsis. During the 3-year period from 2008 to 2010, there were no locally acquired ESBL Extended Spectrum Beta Lactamase isolates among the 2591 admissions, the fungal septicaemia rate in the 440 very low birthweight babies was 0.68% and there were no deaths in the 15 inborn babies identified as having group B streptococcal sepsis.

While we are not advocating a sudden widespread change in the antibiotic management of suspected early neonatal sepsis, we would suggest that, in the formulation of antibiotic guidelines, the regimen selected by individual neonatal units should take into account the prevailing antibiotic sensitivities of local bacterial isolates and give consideration to both efficacy and toxicity.

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